Claims:

1. A method of creating a patterned monolayer on a substrate, comprising;

preparing organic molecules having self-assembling properties;

applying the organic molecules to an aligning surface; and

separating the aligning surface from the substrate, leaving ordered patterns of the organic molecules on the substrate.

2. A method according to Claim 1, wherein the aligning surface comprises a graphite-like substrate.

3. A method according to Claim 1, wherein preparing includes preparing at least two different species of organic molecules to preferentially align to a specific feature on the aligning surface when applied.

4. A method according to Claim 1, wherein preparing includes preparing at least two different species of the organic molecules to preferentially align to a plurality of features on the aligning surface when applied.

5. A method according to Claim 1, further comprising utilizing the ordered patterns as a mask.

6. A method according to Claim 1, further comprising contacting the aligning surface with the substrate.

7. A method according to Claim 1, wherein the aligning surface is highly ordered pyrolytic graphite.

8. A method according to Claim 1, wherein each of the organic molecules have a tail group and a head group, and optionally a functional group.

9. A method according to Claim 8, wherein the head group is a molecular group.

10. A method according to Claim 9, wherein the head group is a molecular group having an aromatic ring.

11. A method according to Claim 8, wherein the head group is biphenyl.

12. A method according to Claim 8, wherein the ordered patterns include substantially parallel lines, and wherein the size of the tail group helps determine lateral spacing between the parallel lines.

13. A method according to Claim 12, wherein preparing the molecules comprises preparing a solvent system having organic molecules therein, and wherein the organic molecules used to prepare the solvent system determines the lateral spacing.

14. A method according to Claim 8, wherein the functional group of the organic molecules is chosen based on processing requirements.

15. A method according to Claim 14, wherein the organic molecules each contain a biphenyl subgroup.

16. A method according to Claim 14, wherein the organic molecules each contain a thiol group and wherein the substrate contains a layer of gold.

17. A method according to Claim 14, wherein the organic molecules contains an isocynate group as the functional group, and the substrate contains a layer chosen from one of platinum and palladium.

18. A method according to Claim 14, wherein the organic molecules may contain an isocynate group as the functional group, and particles containing palladium preferentially align to the surface along aligned molecules according to their functional groups, and wherein the substrate surface includes palladium.

19. A method according to Claim 14, wherein the self assembled organic molecule contains an isocynate group as the functional group, and particles containing platinum preferentially align to the surface along the ordered isocyanate functional groups.

20. A method according to Claim 1, wherein each of the organic molecules have a tail group and a head group, and optionally a functional group, wherein the organic molecules are laterally spaced after they are applied.

21. A method according to Claim 20, further comprising solvating the organic molecules in an alkane solvent, wherein the solvating process controls the lateral spacing of the organic molecules.

22. A method according to Claim 20, wherein the organic molecules each comprise substituted alkyl biphenyl.

23. A method of creating a patterned feature on a substrate comprising:
preparing a solution of organic molecules having self-assembling properties;
applying the solution to an aligning surface;
contacting the aligning surface with the substrate; and
separating the aligning surface from the substrate, leaving patterns of the organic molecules on the substrate.

24. A method according to Claim 23,
wherein separating the aligning surface from the substrate includes leaving ordered patterns of the organic molecules on the substrate in a manner to perform as a mask.

25. A method according to Claim 23 further comprising introducing additional organic molecule species to the surface which preferentially align to the functional groups existing along defined patterns.

26. A method according to Claim 23, further comprising introducing additional organic molecule species having functional groups to the surface to cause certain molecules to preferentially align according to functional groups along pre-defined patterns.

27. A method according to Claim 24, wherein the method further comprises etching the substrate.

28. A method according to Claim 25, wherein the method further comprises etching the substrate.

29. A method according to Claim 23, further comprising controlling the lateral spacing of organic molecules by solvating the self-assembling molecules in an alkane solvent.

30. A component for use in a device comprising:

a substrate; and

a self-assembled monolayer that adheres to the substrate and that is prepared using organic molecules that align themselves in an ordered pattern configured with a solvating process that promotes an ordered alignment of the molecules on an alignment surface.

31. A component according to Claim 30, wherein the device is a computing device.

32. A component according to Claim 30, wherein the self-assembled monolayer is composed of a plurality of organic molecules, each having an alkyl chain, a head group that adheres to the substrate and an optional functional group that has beneficial properties.

33. A component according to Claim 30, wherein the self-assembled monolayer is a dielectric material.

34. A component according to Claim 30, wherein the self-assembled monolayer includes aligned Au nanoparticles.

35. A component according to Claim 30, wherein the self-assembled monolayer is an etch mask for creating features on a substrate.

36. A component according to Claim 30, wherein the self-assembled monolayer provides an etch mask for making nanosized wires.

37. A component according to Claim 30, wherein the self-assembled monolayer is configured in a parallel line pattern, where lateral spacing between the lines is controlled by solvating organic molecules in an alkane solvent.

38. A component according to Claim 37, wherein each organic molecule is a substituted alkyl biphenyl.

39. A component comprising:

a substrate having a substrate surface; and

nanoscale ordered patterns of organic molecules located on the substrate surface, the nanoscale ordered patterns being formed by organic molecules having a tendency to naturally align in an ordered pattern when temporarily applied to an aligning surface and subsequently transferred to the substrate surface.

40. A component according to Claim 39, wherein nanoscale ordered patterns of the organic molecules are used as components in a circuit on the surface of the substrate.

41. A component according to Claim 39, wherein nanoscale ordered patterns of the organic molecules are used as a mask for etching components in a circuit on the surface of the substrate.

42. A component according to Claim 39, wherein the nanoscale ordered patterns of organic molecules are created from a dielectric material.

43. A component according to Claim 39, further comprising nanometer sized features on the substrate surface created by etching the surface around the nanoscale ordered patterns of organic molecules.

44. A component according to Claim 39, wherein the aligning surface has graphite-like properties.

45. A component according to Claim 39, wherein the organic molecules contain alkyl chains that extend away from the substrate surface and that are connected to the substrate surface by a functional group.

46. A component according to Claim 39, wherein the lateral spacing of the ordered patterns is controlled by solvating alkyl-cyano biphenyl molecules in an alkane solvent.

47. A component comprising:

a substrate having a substrate surface; and

a self-assembled layer having nanoscale ordered patterns of molecules produced by a means for aligning self-assembling molecules in ordered patters and a means for transferring the self-assembled monolayer to the substrate surface, where the self-assembled layer accommodates nano-scale circuit components.

48. A component according to Claim 47, wherein the nanoscale ordered patterns of molecules are used as components in a circuit on the substrate surface.

49. A component according to Claim 47, wherein the nanoscale ordered patterns of molecules are used as a mask for etching components in a circuit on the surface of the substrate.

50. A component according to Claim 47, wherein the nanoscale ordered patterns of molecules are created from a dielectric material.

51. A component according to Claim 47, further comprising nanometer sized features on the substrate surface created by etching the surface around the nanoscale ordered patterns of molecules.

52. A component according to Claim 47, wherein the means for aligning includes a surface having graphite-like properties.

53. A component according to Claim 47, wherein the nanoscale ordered patterns of molecules contain alkyl chains that extend away from the substrate surface and are connected to the substrate surface by a functional group.

54. A component according to Claim 47, wherein the nanoscale ordered patterns of molecules are laterally spaced and are controlled by solvating alkyl-cyano biphenyl molecules in an alkane solvent.